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6 OCTOBER 1986

Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH, AND DEVELOPMENT

FBIS FOREIGN BROADCAST INFORMATION SERVICE

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WORLDWIDE REPORT

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

CONTENTS

LATIN AMERICA

NEAR EAST/SOUTH ASIA

SUB-SAHARAN AFRICA

WEST EUROPE

/9986

ROCKET WITH TWO SATELLITES LAUNCHED

OW130121 Tokyo KYODO in English 0023 GMT 13 Aug 86

[Text] Tanegashima, Kagoshima Pref., Aug. 13 KYODO -- A rocket featuring a domestically developed engine similar to the one used for U.S. space shuttles blasted off successfully Wednesday morning from the space center on this southern island, the National Space Development Agency said. The H-1 rocket carried two satellits, one for use by amateur enthusiasts radio and the other for geodetic survey experiments, which were placed into orbit about an hour after the launching, an agency spokesman said.

The agency named the first satellite "fuji (wisteria)" and the second "Ajisai (hydrangea)." It was the first Japanese launching of two satellites at the same time.

The agency spent 162 billion yen to develop the two-stage rocket with an engine using liquefied oxygen and hydrogen. The Le-5 engine, domestically developed and placed in the second stage, requires high technology to control, particularly at the time of ignition and reignition, according to agency officials. U.S. space shuttles use similar engines using liquefied fuel.

The first stage of the rocket carried a Delta engine produced by the United States. Japanese engineers also developed the inertia-guided system used to control the flight of the rocket.

/8309
CSO: 5560/179

CANADIAN CONTENT REQUIREMENTS REDUCED FOR PAY-TV

Ottawa THE CITIZEN in English 3 Sep 86 p C19

[Text]

TORONTO (CP) — Canadian content requirements for Canada's pay-TV movie channels have been reduced by the federal broadcast regulator, but not to the level being sought by the industry.

The channels, commonly known as Superchannel, First Choice and Premier Choix, will now be required to show 30 per cent Canadian content in prime time and 20 per cent during the rest of the day.

Superchannel and First Choice had suggested their Canadian content level should be 15 per cent, while Premier Choix suggested 20 per cent.

Under guidelines suggested by the industry during licensing in 1981, the channels had been required by the Canadian Radio-television and Telecommunications Commission (CRTC) to show 50 per cent Canadian content in prime time and 50 per cent overall.

But the industry said earlier this year that a number of factors — including slow subscriber growth, booming sales of videocassette recorders and a shortage of Canadian feature films — had left it financially weak and unable to meet the requirements.

The three companies had been required to spend 45 per cent of gross revenues and 60 per cent of their program budgets on Canadian programming. First Choice and Superchannel proposed this be reduced to 50.1 per cent of adjusted gross revenue, defined as total revenues less all operating expenses.

The commission said Tuesday that the companies must spend 20 per cent of gross revenues, noting that the industry had said this would provide a similar level of funding as the 50.1-formula they were seeking.

In announcing the decision, commission chairman Andre Bureau said the pay-TV industry must be shown flexibility until it is able to "find its niche in the broadcasting system" and noted that the pay channels can only contribute to Canadian production "if it is a viable and healthy industry."

But he noted that the changes will be re-examined next March, when the licences of the three firms will be up for renewal.

/13046
CSO: 5520/99

BELL CANADA SOFTWARE SYSTEM, NEW SUBSIDIARY DISCUSSED

Integrated Office Software System

Ottawa THE CITIZEN in English 2 Sep 86 p D8

[Text]

TORONTO — Many companies, such as Bell Canada, share a growing realization that if they move cautiously they can capitalize on custom software and hardware solutions created by their own computer departments.

It's hard to think of any Bell Canada undertaking as a fledgling operation. But last January the giant telephone utility's 1,800-employee corporate systems organization in Toronto formed a small marketing group to sell its own integrated office software system.

Such products, although designed for internal use, often address a need existing commercial products don't fulfil — and the best may be able to stand the test of the marketplace.

"More and more companies are starting to look at technology as a profitable by-product of their operations," notes Bruce Stuart, software consultant with Touche Ross and Partners in Vancouver.

Selling computer products or services inspired by internal innovations isn't new. Canada's two largest computer service bureaus, Canada Systems Group Ltd. and Crowntek Communications Inc. (formerly Datacrown Inc.), both of Toronto, were founded in the 1970s to provide processing services exclusively for their parent companies, and only later offered those services to business at large.

Although no statistics are available, Stuart says a new emphasis on turning systems departments into profit centres has led to an increase in the number of products being generated from companies' technology activities.

The payoff isn't always in money. The group selling Bell's system, so far, has sold only enough to keep itself running. While it hopes volumes will increase, the effort is mainly earning it goodwill.

For many companies, the decision to sell their home-grown computer systems hinges on how they will ultimately bring the product to market. At Bell, the decision was made to retain marketing within the systems organization, so the staff would be readily available to support clients' technical needs.

Mobile System Subsidiary

Toronto THE TORONTO STAR in English 3 Sep 86 p E6

[Excerpt] Bell Canada has created a subsidiary to strengthen its position in a large and growing market for private mobile telecommunications systems, estimated at $250 million.

The company says its Bell Canada Management Corp. unit has formed Bell Mobile, headed by Claude Boivin as president.

On Monday, Bell transferred its private mobile assets and customer base to Bell Mobile, which will serve customers from offices in Toronto, Montreal and Quebec city.

"The creation of Bell Mobile focuses Bell's expertise on a large and growing market," Bell Canada says in a news release. "It is positioning itself as a market leader offering integrated voice and data systems employing the full range of radio telecommunications equipment to meet the diverse needs of its customers."

Bell Canada's Lynda Leonard says the private mobile telecommunications market is estimated at $250 million, with 450,000 units in the country.

Bell Mobile offers such services as computer-aided dispatch computer-aided dispatch and police information systems (linked to 911 systems where available), mobile data terminal systems, voice radio systems, alarm monitoring systems and in-house radio paging systems. Its customers include municipal governments, police forces, emergency service agencies, transportation industriesn and courier companies.

Bell Canada itself serves more than 6 million business and residential customers in Ontario, Quebec and parts of the Northwest Territories.

/13046
CSO: 5520/99

MITEL OFFERS UPGRADED SX-200 DIGITAL SWITCHING SYSTEM

Ottawa THE CITIZEN in English 3 Sep 86 p C8

[Article by Greg Barr]

[Text] Anxious to preserve its share of the worldwide small business telephone systems market, Mitel Corp. unveiled an upgraded version of its bread-and-butter SX-200 telephone switching system Tuesday.

The main marketing point of the system, as far as its technology is concerned, is the system's ability to offer the combined data and voice capability over a single telephone line, or what's known as a "single twisted-pair" in the industry.

The new SX-200 Digital system is an upgrade to the Generic 1000 system which Mitel finally unveiled in June, 1985. The Generic system allowed Mitel SX-200 and SX-100 customers to convert their systems from analog to the more sophisticated digital technology.

The system allows customers to connect personal computers through the telephone switching system, which acts as the "hub" of the network tying the computers together.

The SX-200 Digital system, under development for the past four years and built at the Kanata company's Renfrew manufacturing plant, has cost-saving features normally available for voice calls only, such as speed-dialing and automatic route selection which picks the most cost-effective route for the data traffic.

Rick Miskiman, Mitel director of product marketing, said the system offers customers the "pay now or pay later" option, meaning they can buy the fully-integrated voice and data system or can buy the basic SX-200 analog system and add digital capabilities later when needed.

The system will be sold primarily to customers requiring up to 200 telephone lines, including hotel and motel operators and other business users. International Data Corp., an industry research firm in Framingham, Mass., says the under-200 line market is the most competitive and fastest-growing segment of the telephone switch business in North America.

The system drew praise from industry analysts not only for its enhanced capabilities, but for the timing of its release.

"Although the customer requests for this sort of capability is minimal now, there is lots of growth anticipated in that market. Mitel's product is really for the small number of customers who need digital voice and data capabilities now," said Elisabeth Angus, an analyst with Angus TeleManagement Group Inc. in Toronto.

Angus said it's a good sign that Mitel is not merely pre-announcing a product and then telling customers they have to wait a year to get the system like other manufacturers have done.

"They're coming out of their floundering phase and getting their act together," she said.

/13046
CSO: 5520/99

SPAR TO BUILD ANIK E SATELLITES FOR TELESAT

Toronto THE GLOBE AND MAIL in English 23 Aug 86 p B3

[Article by Lawrence Surtees]

[Text] Spar Aerospace Ltd. says it has received a letter of intent from Telesat Canada for a $200-million contract to build the next generation of Anik satellites.

The Toronto-based manufacturer expects to sign the contract for the two Anik E satellites in mid-October, the company announced yesterday in a statement. The contract will also require Spar to provide launch support services.

Spar was the only aerospace company invited last December to bid on the Telesat contract. Telesat is the sole domestic communications satellite operator and currently provides service on two Anik D and three higher powered Anik C satellites.

The Anik E satellites will be hybrids, combining both the lower powered C-band frequency channels and higher powered Ku-band frequencies. The current generation of satellites operate at single frequency ranges.

Telesat has also selected a higher power option for the Anik E satellites to enable broadcasters to beam television programs across Canada on a single satellite channel.

Because of these features, the Anik E spacecraft will also be larger than other satellites previously built by Spar, making it more expensive. The new satellite will weigh 2,700 kilograms at launch and be equipped with 24 C-band channels, 20 conventional Ku-band channels and six special Ku-band channels.

The first Anik E, which will be Telesat's 10th satellite since the first Anik A was launched in 1972, will be lifted into orbit by 1990 or 1991. The second Anik E will be kept on the ground as a spare.

The decision earlier this month by U.S. President Ronald Reagan to ban commercial launches from the U.S. Space Shuttle when it resumes operation means Telesat will have to have the Anik E launched by conventional rocket. Telesat was one of the first customers of the shuttle, which is operated by the U.S. National Aeronautics and Space Administration.

The contract will give Spar a substantial boost to its slumping profit, because of a current hiatus in major contracts. Spar reported profit for the six months ended June 30, 1986, of $4.3-million or 42 cents a share, compared with $7.7-million or 85 cents a year earlier. Revenue was $94.5-million, compared with $115.5-million.

With the launch of the Brazilsat satellite this spring, Spar completed its contract with Brazil to build two communication satellites. That contract was made possible because of Spar's Anik D contract from Telesat — its first satellite communications job as prime contractor.

With the Anik E contract, however, Spar will have to buy one of the most critical components of the satellite, the satellite bus.

The bus is a three-axis stabilized platform that allows the satellite to

spin in synchronization with the earth's rotation. The second part of the bus counter rotates the satellite's antenna so that it stays fixed on the same point on earth to send and receive signals while in orbit more than 36,000 kilometres above the equator.

A unit of RCA Corp. of New York announced its intention in May to seek the multi-million-dollar subcontract from Spar. A unit of Hughes Aircraft Co. of Culver City, Calif., also makes the satellite bus.

/13046
CSO: 5520/99

BRIEFS

SARSAT FUNDING--Frobisher Bay, N.W.T. (CP)--The Canadian Forces' satellite search and rescue system will get $18 million to buy additional ground equipment, Defence Minister Perrin Beatty has announced. The system, known by its acronym SARSAT, locates aircraft or ships in distress by pinpointing emergency signals from onboard transmitters. SARSAT is credited with saving more than 600 lives, 178 of them in Canada. [Text] [Toronto THE SATURDAY STAR in English 30 Aug 86 p A8] /13046

CSO: 5520/99

CARIBBEAN STATES EXPLORE SATELLITE SYSTEM WITH ITU

Port-of-Spain DAILY EXPRESS in English 23 Aug 86 p 49

[Text]

CARICOM governments in conjunction with the International Telecommunications Union (ITU) are preparing to conduct a feasibility study for a Caribbean Satellite System to service this region.

Despite objections from Intelsat (International Satellite Organisation), of which Trinidad and Tobago is a member, governments in the region have made the decision to establish a regional satellite system.

The reason, says director of telecommunications Winston Ragbir, is that the present regional system is very poor, being multiple-owned and lacking in proper co-ordination.

"Telecommunication in the region is very poor, as we do not have an integrated infrastructure in which we can broadcast. A regional satellite system would bring all Caribbean services into a common network," said Ragbir, adding: "It is hoped that it will be owned by regional bodies."

"We will eventually have to seek Intelsat's approval," said Ragbir, but he believes that "when the time comes, we will get the approval" because there are other similar regional systems operating around the world.

Intelsat disagrees with the establishment of the Caribbean Satellite System because because it believes that it is equipped to provide the regional service, but Ragbir says this is not so.

In any event Intelsat would still handle the Caribbean's international telecommunications needs, as the Caribbean Satellite System would be a purely domestic system.

/9317
CSO: 5540/107

TELEVISION'S ROLE IN CARIBBEAN POLITICAL UNITY CITED

Port-of-Spain TRINIDAD GUARDIAN in English 23 Aug 86 p 3

[Text]

CARIBBEAN integration would be greatly assisted if television stations in the region would be able to transmit programmes as well as receive.

This view was expressed by John Barsotti, General Manager of Trinidad and Tobago Television, when he presented a paper at last Monday's seminar "Satellite Dishes and You". The seminar was sponsored by by the Association of Professional Engineers of Trinidad and Tobago (APETT).

Emphasising that the satellite dish is a valuable tool in the operation of any television broadcasting operation, Mr Barsotti said that up to May this year, before TTT installed its "dish", the station had been some eight to ten years behind technology.

He said that with the installation of the 11-metre antenna TTT has made considerable progress in just over two months with more current news, sports and other events.

However Mr Barsotti pointed out that the capability to transmit is as important a function of a satellite as is its receiving function. Stressing that regional television stations with satellites should be be able to do so, he added:

"Perhaps television by satellite could help if we in Trinidad and Tobago were able to see news or cultural programmes coming out of St Lucia, Dominica or other countries, and vice versa, and this may be a step in the right direction towards true Caribbean integration."

Common Problems

"The Caribbean as a region share common problems; we have similar cultures and all of these are areas that need to be be shared among us."

The General Manager noted that certain international laws governing the use of satellites do not allow broadcasters like TTT and other Caribbean stations to transmit signals.

He said that the current practice of using the facilities of other organisations to transmit television material is dissatisfying, and he added:

"The time has come for broadcasters, using satellite dishes on their own premises, to be in a position to receive and transmit programmes regularly."

Mr Barsotti told the gathering that quite contrary to the views expressed about TTT's satellite dish "by a minority in the society," the station is overwhelmed by the very positive response expressed by its viewers about the antenna.

/9317
CSO: 5540/107

ALICURA-ABASTO TRANSMISSION SYSTEM INAUGURATED

Bahia Blanca LA NUEVA PROVINCIA in Spanish 31 Jul 86 p 10

[Text] National Secretary of Energy Jorge Lapena and the head of the North Patagonia Hydroelectricity Company (HIDRONOR), Dr Cesar Martin Garcia Puente, will inaugurate the Alicura-Abasto transmission system at the Bahia Blanca transformer station today.

The inauguration ceremony will be held in the facilities located at the 13.3 kilometer marker on Route 51, beginning at 11 am. Earlier, at 9 am, the president of the state hydroelectricity company will sign an agreement with the National University of the South, calling for mutual collaboration.

The project which will be commissioned today includes four transformer stations, one of them near our city. The official inauguration of the 500-kilovolt electrical transmission system will be held there. The system extends 1,650 kilometers between Alicura, in Neuquen Province, and Abasto, 50 miles from the federal capital. The total investment comes to $300 million.

Officials Participating

In addition to Engineer Lapena and Dr Garcia Puente, it has been announced that others attending will include Undersecretary for Electrical and Thermal Energy Jorge Olmedo; Undersecretary for Business Management Jaime Alberto Sujoy; the head of the Senate Energy Commission, Dr Humberto Cesar Sigal (UCR); the president of SEGBA, Dr Juan Jose Valdettaro; the secretary of the executive committee of the Yacireta Binational Body, Eng Roberto Etcharte; and the head of the National Atomic Energy Commission, Alberto Costantini.

Provincial officials from Buenos Aires, Rio Negro and Neuquen, including the general manager and accountant of the Provincial Energy Office, Enrique Serra, are also expected to be present.

The inauguration of the system is scheduled for 12:25 pm. Beginning at 9, the ceremonies will include the raising of the national flag, the national anthem, pertinent remarks by the head of the HIDRONOR, S.A., Dr Cesar M. Garcia Puente, the intendant, Juan Carlos Cabiron, and national Secretary of .pa Energy Jorge Edgardo Lapena; the unveiling of a memorial plaque; the blessing of the system and the cutting of the ribbon.

After the 500-kilovolt line is put into use, there will be a tour of the facilities, and at 1:30 pm, wine will be served at the offices of the enterprise in our city.

Importance of the Line

In the event of a breakdown in the El Chocon-Cerros Colorados transmission system due to a tornado (which has happened in the past on rare occasions), the new system will make it possible to continue supplying the National Interlinked System, thus avoiding the need to reduce loads or cut power in the main consumer centers.

Agreement with the UNS

When the president of the board of directors of HIDRONOR visits Bahia Blanca, that enterprise will sign an agreement with the National University of the South establishing a program of mutual collaboration. This ceremony, which will be attended by the national secretary of energy, Eng Jorge Edgardo Lapena, and the undersecretary for electrical and thermal energy, is scheduled for 9 am in the office of the rector of the educational institution.

The protocol will be signed by the head of the enterprise, Dr Cesar Martin Garcia Puente, and, on behalf of the University Council, by UNS Rector Alberto Ricardo Casal. Both of these officials will speak, following an address by a HIDRONOR scholarship student in civil engineering at the UNS, Roberto Arcangel.

The program in question calls for the use of VAX 11/780 computers at the university to carry out electrical studies and draft reports pertaining to the HIDRONOR power system. The enterprise, in turn, is committed to transferring ownership of a personal computer of the XT type compatible with the IBM system to the university. It is to be used for the needs arising out of the agreement and later for research and development work to be done at the Electrical Engineering Department at the National University of the South.

The departmental council of that academic unit unanimously approved this project.

The agreement will be in effect for 5 years and can be renewed at the end of that period. It is believed that it will "make it possible to establish a continuing exchange of scientific and technological information, and also to use the programs developed for educational purposes." The UNS is undertaking to establish special privileged access for the enterprise, through a protected computer account, and to provide technical and operational assistance as required, within its capabilities.

The programs developed within the context of this agreement may be used for educational purposes at the university, at its request, according to the agreement.

The transfer of the personal computer from the HIDRONOR to the UNS is of a permanent nature, it has been stated.

Energy for Urban Development

One of the most extensive electrical systems in the world will go into service at 12:25 pm today. If it were not for the huge towers dotting the fields near the city, the people of Bahia Blanca might not have realized that such a tremendous project is affecting our district. Thanks to a transformer station installed at the 13.3 kilometer marker on Route 51 leading to Cabildo, it will provide a guarantee that in the future, with the assistance of the DEBA, a sure supply of electrical energy, with a minimal risk of power outages, will be provided for industrial development and domestic consumption.

In fact, along the length of the length of the Alicura-Abasto transmission system, four transformer stations have been built at intervals, making it possible to step down power and connect the regional networks with the National Interlinked System.

The background for the inauguration of this 500-kilovolt system also includes the effective establishment of the HIDRONOR, S.A. in Bahia Blanca.

The Transformer Station

The network which will link the Alicura hydroelectric plant, located in the southern part of Neuquen, with Abasto, 50 kilometers from the federal capital, is 1,650 kilometers long. The four transformer stations along it were built in El Chocon West (244 kilometers from Alicura), Choele Choel (517 kilometers), Bahia Blanca (862 kilometers), and Olavarria (1,113 kilometers).

The Bahia Blanca transformer station is located at the 13.3 kilometer marker on Route 51, and technical responsibility for it was entrusted to Eng Humberto Canosa, with whom we toured the installations on which construction work was begun in 1982.

To a mere observer, the complex, a network of towers and cables, may seem unattractive. However, inside the building where the control and safety systems are located, modern concepts of equipment and technology are evident.

"This station will serve to correct the tension profile of the system, and with the transformers in place, it is possible to step down current for the regional electrical supply." While explaining these concepts, Engineer Canosa took us to visit each of the sites which are being put into service.

He went on to explain: "This complex includes circuit breakers, section switches and bus reactors. It is the latter precisely which are used to correct the tension profile."

With regard to the towers, the technical chief said that "normally they are used for a system transporting 500 kilovolts. There are two types. One is the "lease," also called the "support" type, which is the most used, while the others are called self-supporting towers, and are used at the curves which occur in the root of the line or on entry into or exit from the transformer station."

Positive Results Achieved

The control system and the safety system for the reactor lines are located in the central station building, which covers an area 350 by 300 meters.

"The space needed for future expansion has been reserved," Eng Humberto Canosa said, "since once the Piedra del Aguila hydroelectric power plant goes on line (in 1989, according to the head of HIDRONOR), another transmission system which will pass through Bahia Blanca will be set up."

The aluminum cables used in the station have a diameter of 1-8.5 millimeters, and those for protection against lightening 75 millimeters. The tests made "have yielded positive results," Eng Canosa said.

Piedra Buena Power Plant

There will be some who will ask if with the installation of this system in Bahia Blanca, the building of the thermoelectric power plant in Ingeniero White is justified. Without a doubt, the growth of the petrochemical center and the development of the industrial park are increasing the demand for electrical energy, and thus the two projects are essentially complementary, providing guarantees in terms of the future prospects, not only in the city but the whole region as well.

And in addition, when the plant the province is building in Ingeniero White is completed, its production can be added to the National Interlinked System, since the Bahia Blanca-Abasto connection along the HIDRONOR line can absorb the power generated by the thermoelectric power plant and transfer it to the balance of the national electrical system.

The ability to utilize the electrical energy generated by the Limay River in Alicura now depends on the Buenos Aires Provincial Energy Office, which plans to build a station adjacent to the HIDRONOR facility on Route 51. But this will not happen for 18 months, the period established by the provincial office for completion of the work.

5157
CSO:5500/2075

BRIEFS

BROADCASTING BOARD--Bermuda Broadcasting Company has reelected its five-man Board of Directors and key executives. More than 35 shareholders attended the company's annual general meeting Friday where they heard of its $561,000 profit in 1985, the BBC's first full year of trading since local television returned to the air. Reelected were directors Mr Cecil Dismont, Mr Kenneth DeFontes, Mr Frank Mutch, Mr Geoffrey Moore and Senator W. James Williams. Officers reaffirmed were Sen Williams as company president, Mr Mutch as vice-president and secretary and Mr Malcolm Fletcher as acting general manager and treasurer. BBC, which runs the ZBM and ZFB television and radio stations, staged a $1.6-million turnaround during the year, turning a $718,000 operating loss in 1984 into a $446,000 profit. Ownership of the company remains a question for the courts. The Edmund Gibbons group will soon appeal an Appeal Court order to surrender control to rival shareholder Mr Fernance Perry. [Text] [Hamilton THE ROYAL GAZETTE in English 19 Aug 86 p 3] /9317

CSO: 5540/108

BRIEFS

50,000 NEW TELEPHONES INSTALLED--Fifty thousand telephone subscribers have been added to the local telephone exchange in Maranhao State, doubling its capacity. Densely inhabited areas, such as apartment buildings, where one telephone serves for up to 10 families, have been given preference. Communications Minister Antonio Carlos Magalhaes yesterday inaugurated the new system by placing a call to President Jose Sarney. [Summary] [Brasilia Radio Nacional da Amazonia Network in Portuguese 1000 GMT 1 Aug 86 PY] /9738

CSO: 5500/2078

SATELLITE TRANSMISSION OF NEWSPAPER

PA041841 [Editorial Report] Managua Domestic Service in Spanish at 1800 GMT on 2 September broadcasts a report from Mexico City saying that for the first time in the history of Latin American journalism, a Mexican newspaper has been transmitted via satellite. Using the Mexcian satellite Morelos I, the official newspaper EL NACIONAL has been transmitted from Mexico City and simultaneously reprinted 700 km away in the northern city of Monterrey.

The report does not indicate frequency or regularity of transmission.

/12232
CSO: 5500/2081

GOVERNMENT GETS PROPOSED BROADCASTING CODE OF ETHICS

Port-of-Spain SUNDAY EXPRESS in English 24 Aug 86 p 5

[Text] "GOOD TASTE", based on local societal norms, should be the guide for matters such as sex on television. That is one of the recommendations contained in a broadcasting code of ethics recommended by the Cuffie Advisory Committee and which now sits on the desk of Information Minister Muriel Greene.

Chairman of the now-disbanded committee, Max Cuffie told the SUNDAY EXPRESS yesterday the report was handed in to the Minister in March, adding he did not know how the government planned to proceed on the matter. He had however, been called in by the minister for discussions arising out of the report.

Generally speaking, he said, the committee's recommendations addressed the question of how best television and radio could be used in national development. The recommendations, he said, followed closely the committee's terms of reference which called for guidelines and standards for the National Broadcasting System based on the need to inform, educate and entertain without impartiality.

On the specific topic of sex in broadcasting, Cuffie said the topic was not addressed specifically by the committee, but was dealt with under the heading of "good taste" in programming.

"Good taste" was defined he said, as "things generally accepted by the vast majority of the people in this society. This criterion, he said, was recommended in such areas as sex, race, colour and religion.

On the broader areas of sex, said Cuffie, attention was paid by the committee to the role of women in broadcasting, such as the portrayal of women in advertising, the extent of coverage of women's views on issues of national interest and attention to women's issues.

Areas of study within the committee's scope of work included:

- quality, content and local/foreign mix of programmes
- the promotion of indigenous programmes with opportunities for the preservation of different cultural forms in the country e.g. art, music, dance, drama and cuisine
- impartiality in reporting
- programming not offensive to good taste, racial groups or religious faiths
- defining the role of the electronic media
- monitoring the purpose and nature of advertising messages
- assessment of complaints from the public with respect to a Code of Ethics for Broadcasting.

Members of the committee were : Max Cuffie (Chairman); Pat Bishop, Charles Mungo, Stella Seales Woodley, Sonnylal Batchu, Claude Boyce, Rev. Canon Knolly Clarke, Karen Ramkissoon, Ashwin Creed, Hamilton Clement, Frank Hughes, Frank James, and member/secretary Eunice Alleyne.

/9317
CSO: 5540/109

OIL COMPANY OPENS DIRECT SATELLITE LINK WITH U.S.

Port-of-Spain DAILY EXPRESS in English 27 Aug 86 p 12

[Text]

THE Amoco Oil Company has established a direct satellite link between the East Coast operations in Trinidad at the company's research centre in Tulsa, USA.

The link was made using an International Business Service (IBS) circuit leased from the International Telecommunications Satellite Organisation (Intelsat), arranged with the assistance of the Trinidad and Tobago External Telecommunications Company Ltd (Textel).

The IBS station is the first of its kind in Trinidad and Tobago and is located on the George Gallaway rig off Galeota Point, East Coast Trinidad. The station is equipped with two-way video conferencing and high speed data flow capability which will allow Amoco to drill more efficiently and economically.

Personnel on the rig can feed data to Tulsa and in turn draw from the research centre's data bank, information necessary for making quick decisions on various aspects of the drilling operation. The video conferencing feature will also allow personnel in Tulsa to monitor key operations on the rig as easily as if they were actually there.

As this country's signitory to Intelsat, Textel was involved in arranging the administrative, regulatory, co-ordination and testing requirements between Amoco and Intelsat and is also responsible for ensuring that the system conforms to the required technical and operational standards set in Intelsat.

This entailed the supervision of equipment installation and satellite system operating guide testing and will require Textel to monitor day-to-day operations on the rig and perform periodic inspections.

/9317
CSO: 5540/109

ARABSAT PROGRAM GETS 'SECOND WIND'

LD072139 Algiers APS in English 1455 GMT 7 Sep 86

[Text] Algiers, 7 September 1986 (APS)--The General Assembly held last March in Algiers by Arab telecommunications ministers seemed to have given the Arab satellite "Arabsat" its second wind. The system has in fact witnessed the use of 600 new circuits since that date.

This number will increase within the coming days with demands of transfer of circuits from foreign satellites to Arabsat made by a number of Arab countries including Algeria, in conformity with decisions taken during the latest General Assembly.

The milieus of the organization, which is chaired by the Algerian Abdellah Bairi [name as received] show optimism for a better rationalization of this system of telecommunications about which a number of Arab countries have shown apprehensions. This [words indistinct] to lead to an unprecedented financial bankruptcy.

At present, the situation seems to improve thanks to Algiers meeting which constituted the life line.

The Arabsat operation which was launched in April 1976 with 100 million dollars reached 280 million dollars after the launching of the first satellite, namely a deficit of 180 million dollars. This has been reduced to 100 million dollars thanks to an increase of capital by the Arab League.

These financial problems are the results of errors in the (?management) and which constituted the most important point of the recent General Assembly during which a series of solutions have been envisaged such as the maximum exploitation of the satellite by Arab countries and the extension of its use to Moslem countries.

So the present passion of Arab states for their satellite has been favored by Algiers meeting and the Tripoli meeting which will be held next March will be held in a more relaxed atmosphere. The meeting may discuss about the second satellite which will replace the present one, whose service is limited for 7 years.

/12232
CSO: 5500/4622

PTI EXPERIMENTS IN SATELLITE TRANSMISSION

Bombay THE TIMES OF INDIA in English 8 Aug 86 p 3

[Text] THE Press Trust of India today "broadcast" news and pictures via satellite in a unique experiment which will change the transmission of news agency services to the media in the country.

This technique, using the S-band broadcast facility on the INSAT-IB satellite, will enable PTI to provide its various services directly and simultaneously to all its subscribers everywhere in India. It also marks the first step towards the launching of the country's first wireless photo service.

The minister for information and broadcasting, Mr. V. N. Gadgil, was among the first to see the news and photos beamed through the satellite using prototype equipment developed by the Space Applications Centre, Ahmedabad, and PTI's R and D.

Mr. Ramnath Goenka, PTI chairman, and Mr. P. N. Haksar, a director of PTI, briefed the minister on the point-to-multipoint transmission technique — simultaneous dissemination from one source to all the subscribers.

TELEPRINTER CHANNELS

Top officials of the ministry of information and broadcasting, including All India Radio, and the departments of space and telecommunications, who are actively involved in the satellite project, were also present on the first day of the week-long experiment.

In the experiment, teleprinter channels carrying PTI's news services for large, medium and small newspapers, its different commercial services and PTI news-scan video capsule service, along with a photo-carrying channel are combined together and beamed to the satellite. The beam is received through a dish antenna by a direct reception set, which selects out one or more of the services as required onto electronic teleprinters and a special photo receiver.

/13104
CSO: 5550/0160

ELECTRONIC DIGITAL EQUIPMENT UNIT FOR BANGALORE ITI

Madras THE HINDU in English 15 Aug 86 p 9

[Text]

The proposed electronic digital switch and equipment manufacturing unit is to be set up at the Bangalore unit of the Indian Telephone Industries. Production will commence from 1988.

The Chairman and Managing Director of the State-owned ITI Mr. K. P. P. Nambiar said here today that the change-over in the manufacturing process at Bangalore would be from September, 1986 to September, 1987. The Strowger and cross-bar equipment would be phased out during the Seventh Plan period from both the Bangalore and Rae Bareliy units.

The 2,700 workforce which would be rendered surplus following the upgradation of technology would be fully "deployed and absorbed" in the electronic digital equipment manufacture, he said.

The major fall-out of the upgradation of technology would result in the manufacture of 500,000 electronic lines, which in terms of manufacture was more than eight times the present production with the existing labour.

Corporate R&D wing

Mr. Nambiar said the R and D wing of the ITI would be upgraded into a corporate R and D establishment for the entire telecommunication industry. He announced a production target of equipment worth Rs. 1,300 crores for all the ITI units. ITI produced goods worth Rs. 236 crores in 1983-84 and Rs. 300 crores during 1984-86. It was envisaged to produce equipment worth Rs. 450 crores during 1986-87.

He said the National Informatics Centre had placed orders for making low-cost transmitters required for setting up 1,000 satellite earth stations. ITI had also bagged the order for the manufacture of a central transmitter worth about Rs. 2 crores. Five hundred earth stations would be set up in the current year and the remaining 500 in the following year.

A telephone manufacturing unit would be set up in Assam and a decision would shortly be taken on whether the unit would be part of the ITI or a separate Assam Government undertaking.

'Participative management'

Mr. Nambiar, formally inaugurated today the scheme of "participative management" providing for direct and total participation of employees at all levels of the decision making process.

Mr. H. R. Alva, Additional Director of ITI, said the scheme envisaged functional management councils at micro-level. The councils would meet twice a month. A joint management council at the macro level would meet atleast once a year. The former would operate in all the units whereas the latter was a representative body consisting of corporate management, unit management and representatives of unions and officers associations. Mr. V. S. Ramaswamy, General Secretary, ITI Employees Union, commended the management for making it practical for workers participation in the decision-making process at all levels.

Mr. B. R. Krishnamurthy, Secretary; ITI Officers Association, proposed a vote of thanks.

/13104
CSO: 5550/0161

ITI OFFERS SYSTEM TO DESIGN LSI CIRCUITS

Madras THE HINDU in English 18 Aug 86 p 9

[Text]

The Indian Telephone Industries today placed on the market a computer-aided system to design large scale integrated (LSI) circuits intended to improve among other things the country's telecommunication facilities.

The Union Minister for Communications, Mr. Ram Niwas Mirdha, inaugurated the LSI and VLSI (very large scale integrated) circuits laboratory at the ITI here today.

Mr. Mirdha also released a streamlined handheld telephone which is pushbutton operated, with optional 10 number memory.

The Minister commended the innovative pursuits of the ITI to catch up with modern trends in telecommunications. He was happy that the LSI and VLSI circuits laboratory could be set up at a cost of only Rs. 3 crores, based on wholly indigenous efforts.

More advanced models of the telephone he released today were being developed. These included the cordless phones as well as a version incorporating multifrequency dialler.

Mr. K. P. P. Nambiar, ITI Chairman and Managing Director, said the technology of LSI/VLSI was the most advanced available in the field of electronics. It enabled the realisation of various electronic system functions in miniature form. Today it was possible to pack hundreds of thousands of transistors on a piece of silicon no longer than one centimetre on a side.

The use of LSI/VLSI devices, he said, reduced cost, improved reliability and cut power consumption. It improved the cost-effectiveness of the overall system. The technology was of great importance in the field of electronic communications and had wide application in all electronic systems.

Mr. Nambiar said the telephone had changed substantially since the ITI started its manufacture more than three decades ago. A variety of instruments had been researched and developed over the years by the ITI.

/13104
CSO: 5550/0162

TELECOM IMPROVEMENTS IN NORTHEAST REPORTED

Calcutta THE TELEGRAPH in English 20 Aug 86 p 7

[Text] Shillong, Aug. 19 (UNI): The ministry of communications has formed a new telecom circle in Guwahati to improve the telecommunications system in the northeastern part of the country, according to official sources here.

A general manager will shortly take charge of the newly-formed circle, and will be responsible for implementing the massive development in telecommunications envisaged under the Seventh Plan in the region, the sources said.

Under the Seventh Plan telecom development programme, Arunachal Pradesh, Assam, Manipur, Mizoram and Nagaland will have a number of electronic exchanges, in addition to a ultra-high-frequency (UHF) system. A national subscriber dialling (NSD) service will also be introduced.

The ultra-high-frequency system will be between Itanagar, the capital of Arunachal Pradesh, and Naharlagan, and the nationsl subscriber dialling facilities from Itanagar and Naharlagan via the Shillong trunk automatic exchange, the sources said.

Work on a 400-line electronic exchange is in progress and is expected to be commissioned at Itanagar during the current financial year. A 200-line max-11 exchange will be installed at Bomdila, the sources added.

One thousand lines will be added to the existing 2,000-line electronic exchange at Imphal. This apart, an UHF system will be provided between Imphal and Churachandpur during the Plan period, the sources said.

Five new electronic exchanges will be set up at Mokokchung, Tuensang, Paren, Ghaspani and Chumukedima in Nagaland during the current Plan period besides, Mokokchung and Tuensang will be linked with Dimapur and Rangaptar on the UHF system.

In Assam, a massive telecom development programme has been launched with a provision for introducing the national subscriber dialling system at five places, including Sibsagar, Halflong, Jorhat and Tinsukia via the Shillong trunk automatic exchange. In addition, a microwave system will be installed between Jorhat-Dibrugarh and Tinsukia, and a digital microwave system will be installed between Jorhat and North Lakhimpur.

Under the development plan, an UHF system between Guwahati and Mongoldai, and between Bongaigaon and Kokrajhar will be installed during this Plan period.

/13104
CSO: 5550/0163

BRIEFS

NETWORK FOR BUSINESSMEN--The Union communications ministry proposes to have a special network for meeting the particular requirements of business and industrial subscribers in the country. Talking to the Bharat Chamber of Commerce here today, Mr P.K. Roy Chowdhury, deputy director general of telecommunications, said that the network would be known as the "Business Subscribers' Network" (BSN) which is proposed to be established by December, 1988 covering the major commercial centres of the country and also providing certain facilities to industries in remote areas through radio and satellite links discarding the trouble-giving cable system. Mr Roy Chowdhury said the department would invite Rs 1 lakh as deposit-cum-investment apart from other costs and would give a return on it for this "participative investment." The connection between the subscribers and the special central exchange would be radio-linked on certain frequencies. A separate authority would be set up with an independent general manager manning it. [Text] [Calcutta THE TELEGRAPH in English 13 Aug 86 p 9] /13104

BOMBAY TELEVISION LINK--All television relay stations in Maharashtra, which are at present connected to Delhi, will telecast programmes from Bombay through a new link from Sunday. Dr. Shrikant Jichkar, minister of state for general administration, said in the legislative assembly today that since the rural people will be watching the telecasts, the programmes would have to be in Marathi. The state government was also urging the centre to telecast a daily summary of the legislature proceedings from Bombay Doordarshan. Replying to a query by Mr. Ram Naik (BJP) about the government's failure to give representation to the Mumbai Marathi Patrakar Sangh on a committee studying the question of giving government advertisements to newspapers, the minister said the issue was not directly related to working journalists. Representation had, however, been given to members of the managements and others connected with the issue. The government had set up the committee in record time fulfilling an assurance given in the house only a few days ago and the first meeting has been held this morning, the minister said. [Text] [Bombay THE TIMES OF INDIA in English 8 Aug 86 p 5] /13104

CSO: 5550/0164

BRIEFS

FRANCE TO SUPPLY TRANSMITTERS--It is necessary to equip our country with modern telecommunications instruments adapted to our task of national reorganization. To attain this goal, the Guinean Government has called on France to grant aid in the telecommunications field. And the national radio is the first organization to benefit from this aid. Our national radio would therefore be able to efficiently cover the national territory thanks to a network of frequency modulation transmitters. Our partner, France, is willing to equip seven transmitting centers with frequency modulation transmitters and will use the already existing facilities utilized by the Posts and Telecommunications office. These centers are located in Kindia, Labe, Mamou, Boke, Faranah, Zerekore ang Kankan. They are to be operational very soon. [Excerpts] [Conakry Domestic Service in French 0645 GMT 28 Aug 86 AB] /12232

CSO: 5500/106

BRIEFS

JAPANESE AID FOR TELEVISION--The governments of Liberia and Japan today signed and exchanged notes of agreement under which Japan will grant Liberia $5.6 million for the expansion of the Television Broadcasting Network of Liberia. Foreign Minister J. Bernard Blamo signed for the Liberian Government, while the Japanese Ambassador to Liberia, Mr Hideo Yoshikawa signed for his government. The grant will be used to implement phase two of the project which includes the construction of two new transmitter stations in Buchanan, Grand Bassa County, and Tubmanburg, Bomi County, as well as buying new transmitters for the Liberian broadcasting system in Paynesville. Speaking at the ceremony, Mr Blamo lauded the Japanese Government for its continued assistance to Liberia, and expressed the government's profound appreciation for this gesture. He said the signing of the agreement was another milestone in the bilateral relations between the two governments, and reaffirmed the Liberian Government's commitment to implement the project, for the education and advancement of the Liberian people. [Text] [Monrovia Radio ELWA in English 2000 GMT 21 Aug 86 AB]

/9716
CSO: 5500/105

TELECOMMUNICATIONS SEMINAR DISCUSSES PROS, CONS OF SATELLITE

Lagos THE AFRICAN GUARDIAN 14 Aug 86 pp 8, 9

[Article by Bolade Opaleye]

[Text] IT was expected that officials and experts who attended the seminar on Nigeria's telecommunications development between July 21-23, would conclude that much remains to be done. Still, some of the things they got to know about the state of the industry were revealing.

They learnt from Communications Minister, Colonel Abubakar Tanko Ayuba, that the country's telecommunications system lacks a back-up delivery unit for terrestrial transmission. The effect: only urban areas enjoy existing facilities. Rural areas – meaning some 70 to 80 per cent of the country – are yet to be covered. There have also been problems of maintenance in respect of current transmission systems hooked to repeater stations. Ayuba said the snag hampers the effficiency of the army, security organisations and the economy.

That is not all. Expansion of the present network of terrestrial transmission systems faces near intractable problems. He also said that the amount and complexity of planning and implementation required would make it difficult to achieve much in a short time.

In the end, Ayuba's bleak report card was the government's careful style of saying that an inclusion of a new system is now necessary. There are plans to launch a satellite, hanging some 25,500 miles above the equator, to boost the country's communications. Experts project that the satellite, expected to be the first domestic communications satellite over Africa, will propel Nigeria into space-age communications, adding to Nigeria's current three transponders (space deliverers) through lease agreement with INTELSAT, a US unit.

Mixed feelings, however dog the new project. After three days of deliberations by local and foreign telecommunications experts, majority of Nigerian participants made it clear that although the benefits of satellite communications were not in doubt, the technical back-up for its viability are not available in the country at the moment. Dr. E. N. Aneebona, Project Manager at the Nigerian Television Authority (NTA), Lagos is worried about existing organisational ability to handle the new technology. He cited the Domestic Satellite (DOMSAT), and the Aerostat Balloon as examples of how we have fared in this country with new technologies. He submitted to the seminar attended by President Babangida, that on the basis of financial, environmental, economic and manpower considerations, a Nigerian-owned satellite "does not appear to be the answer to our immediate need."

MAJOR O. Peters of the Army Corps of Signals suggested that the nation should first get her industries to produce the basic telecommunication components and spare parts and sort out the hitherto confused managerial problem in Nigeria before embarking on the project. He said by so doing, the nation would have taken care of all the genuine fears expressed so far, "so that by the time we take the decision to go Satellite, we know we are fully ready."

Mr. Tunde Oyeyipo, NITEL's General Manager for Space Communications and who is responsible for the company's international services said as desirable as a dedicated Satellite is for the nation, it would be advisable to boost the country's present telephone traffic to about three million lines in order to achieve the desired goal. He explained that the nation should continue with the present lease arrangement with INTELSAT for the meantime, until Nigeria's local capacity is fully developed to make a dedicated satellite economically and technically feasible.

Dr. Mide Ajose, of the Department of Electrical Engineering, University of Lagos, while delivering his paper suggested that government should incorporate a satellite business company. According to him, the company which will be a limited liability company should be floated with shares from the Nigerian public constituting at least 80 per cent of the investment, with little or no governmental control. Government, he said, should only make legislation on the operations of the company, so that it does not conflict with national security and to regulate excessive profit making.

Foreign experts at the seminar were more interested in propagating the benefits of the venture through papers and filmshows presented. They kept pointing to the benefits Canada and Brazil have been deriving from their nationally-owned Satellites. What was lost to the foreign participants was the great disparity in the technological development between these countries and Nigeria.

Before Brazil went satellite, there were more than four million telephones, while Canada had more than two million lines. Nigeria, on the other hand, has at present 227 automatic telephone switching centres; while the total installed capacity of these exchanges is about 400,000 lines. The number of working lines is, at present, approximately 200,000. Besides, the countries (Canada and Brazil) have nationally viable tele-communication systems, which Nigeria cannot claim to have.

Currently, the nation's transmission toll and track trunks are by Terrestrial Microwave, Coaxial Cable and, in some cases, Domestic Satellite systems. At the moment, there are 436 terminal stations while the remaining 172 are unmanned repeaters in remote locations permanently powered by electrical generating sets.

Moreso, the last nine months have witnessed a total addition of 1,835 new channels on the network bearer as follows.

- 1,777 channels for subscriber trunk dialling facilities.
- 36 private wire telephone services (point-to-point) for government functionaries and other organisations and;
- 22 International Direct Dialling Facilities.

The only International Telex Exchange (ITX), however, has 1500 trunks. Along with the voice channels provided by the microwave transmission network, most of the links have on TV bearer and RF channel for National Network Transmissions.

The coaxial cable system, commissioned in 1981, and initially designed to handle 960 voice channels, has suffered both administrative and professional problems which have made it unable to take-off fully.

Furthermore, the DOMSAT system installed in 1975/76, was to be operated and maintained by Nigerians after a few years. However, 10 years after its commission, the country cannot boast of taking over its operations and maintenance. Foreign staff are still rendering these services.

The voice-message circuits on the DOMSAT system are largely idle and television transmission is used only by Nigerian Television Authority operations. Its problems centre around the

poor quality video, noisy audio or no audio at all, and total blackout atimes.

If Nigeria decides to go satellite, it will cost the nation some ₦500 million. Apart from this, it is estimated that Nigeria will spend more than five million dollars in six months for the training of telecommunications engineers to man its space satellite when finally launched. The training which will take place in Canada is for 25 engineers from both the Nigerian Tele-Communications Limited (NITEL) and the Ministry of Communications.

Now, there are two companies — Spar Aerospace and Canadian Telesat — lobbying to win the training contract which will be awarded when Nigeria finally chooses the kind of satellite she wants. And if Ayuba, the Communications Minister has his way, Nigeria might have a Satellite in orbit anytime from 1990.

/13046
CSO: 5500/59

BRIEFS

GHANAIAN COMMUNICATION EQUIPMENT--Togo has now agreed to the installation of flight communications equipment by Ghana at its territory to help improve navigational communication within the subregion. This was disclosed by Mr E.R.K. Dwemoh, Africa regional director of the International Civil Aviation Organization to newsmen in Accra yesterday. He said the Togolese agreement was the result of talks he had in Lome with the Togolese aviation authorities. Mr Dwemoh said Togo had earlier refused to allow the installation despite the fact that the flight communications center in Accra also serves her. [Text] [Accra Domestic Service in English 0700 GMT 24 Aug 86 AB]

/9716
CSO: 5500/105

AUTONOMY, CONTRACT, FINANCING OF TELECOMMUNICATIONS BODY

Brussels LE SOIR in French 22 Aug 86 p 2

[Article by Guy Duplat: "The Global Telecommunications War"]

[Text] We are going to have to get together to negotiate the "contract of the century" and autonomy for Belgium's own.

Today we conclude our series on the worldwide telecommunications wars with a look at the case of Belgium. Our country cannot avoid being sucked into the maelstrom that is currently engulfing the entire industry. The RIT (Telephone and Telegraph operations) and the monopoly currently enjoyed by its suppliers are falling apart. And these charges have set off a lot of political and parochial squabbling. One issue that has practically taken over the business sections of our newspapers for more than 2 years, now, is the matter of RTT's "contract of the century." And it could well generate major problems, come fall, for the Christian-Liberal coalition government.

For a great many years, most of the system's supply of telephone exchanges was routinely ordered from Bell Telephone and, to a lesser extent, from Atea. These contracts were routinely renewed each year, with practically no discussion at all. In 1974, the government again signed a 15-year contract involving tens of billions of francs that barely covered two pages. Bell and ATEA agreed to nothing more than a pledge to supply "state of the art" equipment and "embody technological advances." That contract will lapse in October of this year. RTT has been working on the new replacement contract for exchanges for 2 years, but the file is so thick by now that it is grossly overloaded. It is high time we settled this problem, and time is running out fast, to the point where we have to start cutting into the quick--failing new procedures in formulating calls for bids or consultations.

The industrial regroupings that took place in July have helped, to a degree, to clear the air. First of all came the Bell-ACEC Inc.-messers Davignon and Van Digek for General and Bell, who offered a very ambitious plan more than a year ago. They figure that the Belgian telecommunications market will hit $242 billion by the end of the next decade. Of that total, 176 billion will be bought by RTT, 80 billion worth of which would be spent on public exchanges alone. General and Bell's CEOs proposed allocating 50 percent of RTT's market to Bell and 30 percent to the Corporation (along with the ACEC's). For

Mr Davignon, that proposal would open the door to a major high-tech industrial boom in Belgium. But the other manufacturers, of course, are uniformly deaf in that particular ear. Siemens, which has recently caught up with ATEA, wants more than its share of the 20 percent dropped by Bell and General, expecially inasmuch as General, like Philips, can also cite the jobs it provides in Belgium to lay claim to a bigger slice of the RTT pie. And, as if that were not enough, they tacked on the Walloon and Belgium demands for a more generous wedge of earnings from that contract, to be used as a restorative for the southern portion of the country—a tonic to which only the northern portion has thus far been permitted access.

Forecast: Very Warm for Fall

The impending independence of RTT is on a direct collision course with the deal of the century. The system and its tutelary ministers, D'Hondt and Martens, would prefer to start with the more independent RTT before making up their minds, so as to make sure the system will not be sold a pig in a poke. The French-speaking contingent argues the contrary, fearing that an autonomous system would lack sensitivity to the myriad aspects of industrial policy and community sharing that underlie the "contract of the century." At long last, it is beginning to look as if the whole matter will be settled, once and for all, come fall.

The best news is that by then we shall be reading the report from the four "wise men" selected to design the monopoly that will oversee RTT. They are: Mrs De Bondt, a partner; first Vice President and former cabinet minister Wilmes (PSC), SNI President Vuchlen (PVV) professor at VUB and an ardent advocate of privatization, and Farve (PRL), professor at Liege University.

As for RTT's imminent emancipation, a royal decree granting special powers, drafted by Mr Martens and Mrs D'Hondt late in July, but rejected by the PSC, provides invaluable insights into what this concept may portend.

A good deal more leeway is clearly needed if the system, which has been under heavy fire these past few years, is to regain all its original and vital marketing and technological expertise and enthusiasm. The first draft of the order contemplated stripping RTT of its power to approve or reject equipment and set equipment standards. RTT, as both operator and vendor of telecommunications would thereby be relieved of its dubious position as both judge and party to the same case. The order, accordingly, gives the system more of a free hand in the matter of personnel. The RTT could now rid itself of the rules governing the civil service. The requisite specialists could be hired directly for full-time work, without serving a probation term. There would be more stringent monitoring of sick-leaves.

The system would be empowered to handle the touchy problem of recycling personnel. A very large proportion of the RTT's 27,000 staffers must be subjected to recycling to cope with the new digital technologies. Those who fail to master them would be reassigned elsewhere in the civil service, or sent into retirement. This free hand in personnel management should be merely a preface, because the system is going to have to hire brilliant engineers as well as sound financiers to manage a 180-billion-franc debt, as well as some

marketing aces. All those hot-shots are going to cost RTT a bundle, because it is going to have to pay them a lot more than the standard public service peons earn.

The Installations Crews

The royal decree would also allow a review of all bonus programs so as to provide more motivation to personnel, plus a review of the temporary assignment systems. True, it is astonishing and shocking to find that installation crews at RTT perform only an everage of two installations per day, while the private sector manages to handle three or four. Again, using those special powers, Mrs D'Hondt also hoped to win more financial elbow-room for RTT, so as to render it better able to manage its debt, and to couple that with more autonomy in the area of aquisitions, in order--according to the official explanation--to "make the RTT management both more sensitive to the reported or predicted needs of telecommunications users than to integrating its operations into the specific context of the national economy." That royal order, stricken off at the cabinet meeting on 2 August last, turned exactly in the direction RTT's CEO, Mr De Proft, was hoping for: he had complained loudly for all to hear that his management was continually exposed to harrassment by a dozen ministers and several governmental commissions.

It's a fact: autonomy now for RTT in the short or medium term, but it will be quite a while before its complicated ties with the government are combed out and reviewed. At Val-Duchesse, the government decided to ask for a billion-francs-per year monopoly tax on RTT. That tax, though, is a mere drop in the bucket by comparison with the intricate tangle of financial connections yet to be unraveled. Each year, RTT pays the Treasury some 15 billion francs: initially, in the form of a value-added tax on communications. Belgium is one of the few countries in the world to tax telephones. It begins with a prior levy at the source of loans negotiated and taxes on corporate earnings (RTT is taxed on its profits like any other corporation, and it receives no preferential treatment, although CGER and Credit Communal do). Another delicate financial point involves funding for research and development in telecommunications and subsidies for exports. Thus far, RTT paid for that in the form of a surtax of some 30 percent imposed by Bell or ATEA. RTT would like very much to lower those payments and see the government pick up the chore of meeting its payroll, via the ministries of Scientific Policy, Economic Affairs, or Foreign Trade. In France, for example, the government funds the huge national center for telecommunications studies (CNET). And yet, in the view of our budget minister, Guy Verhofstadt, RTT ought to be left to its own devices, and to sink or swim, without so much as a single franc from the government.

Nevertheless, the issue will be back on the table, come fall...along with others.

6182/12859
CSO: 5500/2727

COUNTRY GETS OWN SATELLITE-TELEVISION EARTH STATION

Copenhagen BERLINGSKE TIDENDE in Danish 17 May 86 p 2

[Article by Harald Holder: 'Danish TV Direct From Satellite']

[Excerpts] Danmarks Radio [Danish Broadcasting Company] will now have an earth station for direct reception of transmission from satellites. Until now it has been necessary to lease the reception station of the Swedish Broadcasting Company in Stockholm.

Agreement was reached yesterday at the meeting of the Radio Council Business Meeting to recommend the project. With this, Danmarks Radio will be more independent, and will save a total of 3.3 million kroner a year. The Swedish connection presently costs 4.8 million kroner annually, and after the Danish reception is operating the distance to the satellite will be shorter. This station is not going to require more than one 7.6-meter antenna. It is thought that it will be the Telecommunications Agency which will be responsible for [transmission through the] air, while Danmarks Radio will handle the reception on the ground.

It was further decided at the Business Committee meeting that [administrative] units with greater cross-jurisdictional responsibility for the individual groups will be created. This would allow a smaller bureacracy and a greater rapidity of operation--both of which will be necessary when Danmarks Radio starts competing with a TV-2 [second, commercial channel].

These plans will be further discussed...; it is expected that the system will be in place by the end of 1988.

/7358
CSO: 5500/2734

SIEMENS SEEN AS POSSIBLE BENEFICIARY OF ITT-CGE MERGER

Hamburg DIE ZEIT in German 15 Aug 86 p 17

[Article by Gunhild Luetge: "No Connection to the Future? A Giant Telephone Syndicate Is Forming in Europe without Substantial German Participation"]

[Text] The announcement was brief, the impact all the greater: "French government agrees to telecommunications merger." The sector was caught up in excitement. A business worth billions is to be redistributed.

Partners in this merger are the American general merchandise conglomerate ITT and the state-owned CGE, the largest telephone manufacturer in France. Together both will form a mammoth European concern: with sales of DM 20 billion and 150,000 employees, the second largest in this sector in the world.

Eurotel, the interim name of the European holding company, will operate in one of the most promising of future markets: public and private communications technology. The telecommunications companies alone--some of which are private and some of which are state-run, such as the postal system in the FRG--currently spend about DM 100 billion world-wide each year so that citizens can telephone each other and businesses can send data, images and text around the globe in seconds.

In the future, they will further increase their investments. In many countries, the complete modernization of the telecommunications networks is planned. Microelectronics allows an interface between computer and telephone. In the future it will be possible to place a telephone call by using the computer and to transmit data, text and animated graphics. Completely new devices will replace the traditional telephone and the simple typewriter in offices--at least this is the projection of the manufacturers.

The first impression is that a powerful colossus will appear in this growth market through the fusion of ITT and CGE. Initial reactions confirm this.

Just a few hours after the news from Paris, Helmut Lohr, head of Standard Elektrik Lorenz AG (SEL) announced: "SEL welcomes the merger." There was a special reason for this quick reaction. As a former ITT subsidiary, his corporation has come under French control. Difficult times are beginning for Helmut Lohr.

The U.S. subsidiary has brought its twelve European subsidiaries, which employ around 120,000 workers, into the new enterprise and in return received $1.5 billion from CGE. With its 33,000 employees and sales of c. DM 5 billion, SEL was the most attractive of ITT's subsidiaries. Having gotten accustomed to dealing with his American supervisors, Lohr will now have to adjust to French management styles.

For even though only the general contours of the planned European telephone holding company can be discerned at the present time, nonetheless one thing is already clear: the French will assume power. CGE presently holds 63 percent, ITT the remainder. Because the French cannot manage such a large chunk financially, CGE head Pierre Suard is looking for additional partners. The Belgian Societe Generale de Belgique and the Spanish operating company, Compania Telefonica Nacional de Espana SA are to participate with 10 percent each. Is the European telephone colossus coming about without German participation?

And yet, Marcus Bierich, head of the Robert Bosch GmbH--which receives one-fourth of its turnover of c. DM 20 billion from communications technology--, has indicated interest for quite some time now. However, he could hardly be satisfied with the portion that is still left over. After all, the head of Bosch has his principles. One important factor for him is the role which would be assigned to his company. And above all he wants to prevent "rationalization from taking place at the expense of German jobs." French mothers have shown themselves less squeamish in this regard. As a fellow combatant, Bierich would certainly be welcome by SEL chief Lohr. He confidently expects to be seated on the board of directors of the new conglomerate.

Concern for German jobs, however, is the only common interest linking the two German managers. In technological terms, there is no contact at all between the two corporations. While SEL is counting on its most recent development, the System 12, the Bosch subsidiary Telenorma is putting the Siemens system EWSD under license. However, Siemens will be one of the largest competitors of the new European conglomerate. This constellation will hardly please the French.

For in the future, they will have to market three technologically different products. CGE dominates 85 percent of the domestic market with two systems, the former ITT subsidiaries hold 26 percent of the European market. The corporations do not deal with the mass of normal telephone users. Purchasers of their highly complex facilities--which are public exchanges which represent the telecommunications infrastructure of a country--are exclusively the national telecommunications companies or agencies. As a rule, they have their tried and true suppliers who preferably are located within their own countries. This has resulted in the fact that in Europe alone, eight companies are concocting their own technologies.

The American AT&T corporation, which up to now has still not found the right connection to the old continent, is Number One in the world in the billion business. And in third place in the world-ranking--which is quite unusual, when high technology is involved--is a German concern: Siemens. The electrical engineering company based in Munich shares with SEL essentially the business of the Bundespost.

In view of this exclusive circle of manufacturers and customers, the French coup appears perfect. With one stroke they have obtained entry into quite a number of European countries.

However, even in the case of stable contacts which have endured for years, a short circuit cannot be completely ruled out. Which system will the heads of the conglomerate support in the long run? "If the telecommunications companies were first to wait until a clear strategy emerges, the new telephone multi could lose market shares," speculates Malcolm Ross, telecommunications expert at Arthur D. Little, a market research firm.

Helmut Lohr is convinced of the technological superiority of his own system, of course: "We have the more promising technology and could also serve the French market." He expects that the French will at some time adopt his system and produce it themselves in France. But it is questionable whether the French will mothball their own product.

What CGE has really achieved through the merger is also unclear. Except for the German postal system, none of the telecommunications agencies has up to now been really happy with System 12. To be sure, it is regarded as a very good idea from the point of view of design, but serious problems have emerged when it came to applications. The designers decided in favor of a decentralized plan--contrary to the traditional centralized technology--, which turned out to be particularly complicated.

And unlike automobiles, for example, which can drive on any roadway, the communications hardware must be modified for export to other countries. This costs time and money, however. ITT had the worst experience. It was not able to find buyers in the United States for System 12, which was designed by SEL for the German postal system--a flop which cost the U.S. conglomerate $150 million.

However, nothing happens in this high tech sector without the U.S. market. The domestic markets, measured against the high development costs of the complex products, are usually too small. The SEL machine required about $1 billion. A German-French product amalgamation would probably be impossible, a new development would be too expensive. However, the simple addition of sales will not bring the power which Lohr is hoping for: "I am proceeding on the assumption that the competitive position of the European telecommunications industry will be clearly enhanced as a result of the concentration of technological know how."

The SEL employees council may not be quite so convinced of the utility of such a European sense of solidarity. The council is worried about its own jobs because of the overlap in production. In reality: if the worst happens, SEL could degenerate into a French central marketing office. And to make things even worse, there are rumblings in the executive offices of the Stuttgart company. Board member Hermann Chlupka is leaving. And just a short time ago, his colleague Roland Mecklinger vacated his seat on the board of directors.

The actual winner in this monopoly game in Europe could thus be a participant which had prematurely departed: Siemens. Because of anti-trust legislation, it was not possible for the largest German electrical engineering conglomerate to

purchase the ITT subsidiaries. Instead, Siemens is now painstakingly registering the market shares of the new holding:

- 85 percent in France
- 60 percent in Spain
- 15-20 percent in Italy
- 40 percent in the FRG.

Thus, in the view of the Munich company, it would only be fair if the French were also to open up their market. In reality, France's postal system is interested in having two contractors, in order not to have to depend on only one supplier. The only French competitor, CGCT, which is a tiny company in comparison with CGE, presently supplies only replacement parts. But its share in the business of the French postal system is sought after: after all, it amounts to 15 percent. If the French government were to agree, the world of market shares would be once again in order for Siemens, at least in Europe. But they have competitors. The chief rival is the Swedish company Ericsson. Fifth largest in the world, this company can, like Siemens, point to successes all over the globe. The U.S. giant, AT&T, is also looking for a dialogue with Alain Madelin, minister for industry.

In the meantime, Siemens has long since found a good connection in the United States. Preliminary agreements have been reached with four large telephone companies for the delivery of digital exchange systems. On the other hand, cooperation with GTE, another prominent U.S. telephone concern, has collapsed. Contrary to original plans, both companies saw no sense in doing what SEL and CGE still must do: find a common denominator for their different systems.

A new factor in this game without limits is the pending privatization of the state-owned CGE. Fortunately for Helmut Lohr, the capital is to be spread and foreign participation is to be limited to 20 percent. Otherwise it is possible that he might once again have to adjust to a new boss.

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NEW ISDN NETWORK 'TRANSCOM' FOR BUSINESS USE

Paris MESSAGES DES PTT in French Jun 86 p 35

[Article by J-P. V.: "National Network of Businesses"]

[Text] Transmission of computer files, fixed images, consultation of image banks, and rapid exchange of documentation are some of the uses of the Transcom digital service intended for businesses. It extends the range of Transfix and Transdyn services already available.

"Advertising company seeks magic wand to transmit advertising campaign lay-out to customer, and to make modifications in real time in response to customer's wishes." The magic wand has existed since last March, it is Transcom.

Transcom is a high-rate (64 kilobits) digital service designed for businesses. It is the first phase of the integrated services digital network (ISDN) of the 1990's. It uses the telephone switching system that serves the 24 million subscribers, making it accessible everywhere in the country. The French Telecoms is the first in the world to inaugurate this service, because the system's digitization level exceeds 50 percent, both in switching and transmission.

For each communication Transcom requires establishing a digital "path" through the switching network between the caller's installation and that of the called party. The software of the switches has been designed to find this digital "path." Each Transcom subscriber is linked to a temporal switch by a specific digital line, by means of a subscriber control, a kind of black box that contains the modems and initiates the communications presentation protocols (see boxed item).

High-rate data transmission is one of the first applications of Transcom, because there are several 64-kilobit terminals already operating in businesses. File transfers and connection of local microcomputer networks is developing, and banks, large multi-establishment industrial enterprises, and research centers are among the first customers of the service.

In 4 Years, 4,000 Subscriber Companies

Transcom positions itself between Transpac, which is less adapted to high

outputs, and the specialized links, which are only profitable for very large volume traffic.

Transcom is also the most economic solution for consulting image banks or transferring images, with applications such as decentralized computer-assisted design. It will enable several intelligent terminals to work at a distance with big computers, and enable teams to tackle their projects in real time.

Telecoms is one of the primary users of Transcom with the SARDE project for documentation electronic storage and archiving. Thus, the voluminous technical documentation, which previously filled a big cabinet in each exchange, is now stored in computer memory, easily accessed, and directly consulted by the technicians in the centers.

Finally, Transcom opens the era of rapid mail providers, with rapid telecopying, and, later, second generation Teletex. Technical bridges between Transcom and Transpac will enable the two generations of Teletex to communicate between themselves.

Transcom completes the range of "Trans" services, with Transdyn and Transfix constituting the top of the range, and Transcom representing the basic digital service. Transfix is a specialized, high-output (from 48 kilobits to 2 megabits) digital service. Transdyn, which began last year, is a numeric links service with point-to-point or multibroadcast switching, with output varying from 2,400 bits per second to 2 megabits per second, using several modes of operation: call by call, substitution and shared time. The service uses the Telecom-1 satellite and also offers multibroadcasting. By the 1990 horizon, Telecoms estimates there will be 1,500 to 4,000 subscriber companies.

[Boxed item: The first step in subscribing to the Transcom service: contact the marketing attache-engineer of the marketing agency or the operations management handling the company's account. He will carry out a technical-economic study and advise as to the best solution among the panoply of data transmission services.

Subscription to Transcom costs 950 francs a month for direct access (control provided by the administration) or 400 francs a month for access through private numeric auto-exchange (control provided by manufacturer). The charge for communications over less than 50 km is 2.7 francs per minute, and further than that 7.2 francs per minute. The rate reductions for off-peak hours are the same as applied to telephone communications.]

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VARIOUS SOURCES OF FUNDS FOR 1987 PTT BUDGET

Paris LE MONDE in French 6 Aug 86 p 20

[Article by E. L.-B.: "Mr Balladur Turns Down Introduction in 1987 of a VAT on Telephones"]

[Text] Gerard Longuet, minister delegate for posts and telecommunications, did not succeed in convincing Edouard Balladur. He wanted to introduce a value added tax of 18.6 percent on telephones to favor those enterprises that could have had this tax reimbursed by the state, and wanted especially to clarify the budgetary relations between the government and the P and T, "taxed" excessively by Rue de Rivoli since 1982. In the "ceiling letter" that he sent to Mr Longuet, the minister of state indicated that the VAT will be introduced "at the beginning of January 1988 at the earliest."

The 1987 P and T budget will thus be a budget of the same type as in preceding years, with appropriations from the general budget that, contrary to Mr Longuet's desires, will be about the same as in 1986, that is, more than 20 billion francs. They include 16.7 billion francs for the General Directorate of Telecommunications (DGT) to finance the electronic network to the extent of 3 billion francs, compared to 4 billion in 1986. It was Mr Madelin, the appointed minister of posts and telecommunications who wanted this reduction. The reserve fund assigned to the general budget will exceed 8 billion francs. However, this sum includes a modification of the previous system. The General Directorate of Posts will receive 4.3 billion francs as payment for the postal checking accounts (CCP) paid by the state, which will in turn receive this sum from the DGT. The reserve fund as such is thus only 3 billion francs, to which is added the saving on the electronic network, that is, approximately 1 billion francs.

P and T personnel will be reduced by 1.1 percent, or 4,600 employees (1,600 in telecommunications and 3,000 in posts). Posts investment will reach 3.3 billion francs, a substantial 10-percent increase. On the other hand, telecommunications investment will remain at about 33 billion francs (an increase of 2 percent).

The status of stamp and telephone rates has not yet been decided. However, it is likely that a slight decrease in telephone rates will be decided on for 1987. It is also likely that telephone calls in the big cities will be charged per 6 minutes this fall, compared to 20 minutes currently.

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BRIEFS

FRG IN ESPRIT, RACE--Frankfurt--Telenorma (TN), the third largest producer of telephone equipment in the FRG after Siemens and SEL, is going to participate in the European Esprit and Race programs in cooperation with the French Jeumont-Schneider company, the director general of Telenorma, Michael Schwarzer, has announced. Several joint projects are under study, in particular the development of a microprocessor designed for private telephones (TN, Jeumont-Schneider and the British Plessey). TN and Jeumont-Schneider have also signed a product distribution agreement. TN achieved a turnover of 2 billion DM ($890 million) in 1985, and expects an increase in sales of 4 to 5 percent this year. Sixty-five percent of the company's activity is in private phones, 12 percent in public phones (booths), and 23 percent in the rapidly expanding field of computers/computer communications (computers, minitels). [Text] [Paris AFP SCIENCES in French 3 Jul 86 p 7] 9920

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TELESPAZIO, SELENIA WORK ON OLYMPUS 1 SATELLITE OUTLINED

New Monolithic GaAs Chip for Olympus

Turin MEDIA DUEMILA in Italian No 7, Jul-Aug 86 pp 96-97

[Article: "An Italian-Made Chip for Olympus" by Giorgio Rivieccio; first paragraph is MEDIA DUEMILA summary heading]

[Text] Named Monomic and produced by Selenia with gallium arsenide semiconductors. In 1988 it will pick up signals from the experimental European satellite.

Monomic is the name given to the "ear" which will pick up signals from DBS [Direct Broadcast Satellite] satellites through parabollic antennas, and then convert the signals into frequencies which, in turn, will be "digested" by standard televisions. Monomic stands for monolithic microwave receiver, i.e., a receiver made up of only one semiconductor chip. Monomic, like all the other Italian DBS equipment, will be produced in our country. In fact, our electronic industry is challenging foreign foreign technology in a field where, given the anticipated expansion of television satellites, independence from overseas suppliers is of critical importance. One needs only think of Italy's technological dependence that existed with the advent of color television.

Today, for example, the most widespread television satellite receiver-converters on the market are Japanese and are produced with standard "discrete" technologies, i.e. by mounting separately all the circuit components (integrated, transistors, etc.) onto one circuit board. The future plan, on the other hand, is to use one, or at the most three to four chips, which will include all the necessary circuit functions. The obvious economic saving with this solution will result in notably reduced receiver costs, in the expectation of increased use of these devices. In fact almost all major Western countries are already involved in producing this type of monolithic chip. And Italy, as it is now demonstrating, does not want to miss out.

The National Space Plan decided on and coordinated the design and production of the chip. Its director, Luciano Guerriero, states: "This initiative was necessary if the country wanted to be ready once direct satellite television became functional." The space plan has set aside 5 billion lire for the production of Monomic which in its first phase (1981) was entrusted to Italtel (primary contractor) with CISE's collaboration; now the company responsible is Selenia Spazio, which has entrusted the industrial production to Selenia Spa.

"The first phase of the project," Mr Guerriero points out, "is successfully concluded." This phase was the production of nonindustrialized circuit prototypes to demonstrate technical feasibility. "Now the second phase begins," Mr Guerriero adds, "and this forsees the production of the entire antenna system, from the parabola to the output of an intermediate frequency signal to be directly transmitted to the television." At this stage Monomic is ready for industrial mass production. "However," the people in charge of the project point out, "this will no longer be contained in one chip, but in three, each having one function. In this way integration and industrial production of the circuit is simplified."

The materials used are Monomic's major innovation. In fact, the chips will be produced with gallium arsenide semiconductors, a "new generation" material now supplanting silicon in several applications. Although more costly and more difficult to produce than silicon, it has the advantage of working efficiently even at very high frequencies, like those on which the signals radiated by the satellite will be traveling, including frequencies between 11.7 and 12.5 gigahertz (billions of cycles per second).

The structure of the circuit is based on four functions: low noise radio frequency preamplification; intermediate frequency (IF) conversion, namely between 950 and 1750 megaHertz (millions of cycles per second) which is relayed to television; IF amplification; and generation of the conversion frequency with a local oscillator. Initially, each of these functions will be carried out by a monolithic gallium arsenide chip, (however, for the last ones standard silicon is still in the "balance"), while later on all these functions will be integrated into one chip. The first operational use of Monomic, i.e., its "baptism of fire," is scheduled for 1988 when the experimental European satellite Olympus should start direct television broadcasting. At the time field tests will be carried out on the pre-industrialized external units which include the 80-centimeter

parabolic antenna and the small signal conversion "box" in whose heart the Monomic circuit will beat.

Telespazio To Manage Olympus Satellite

Turin MEDIA DUEMILA in Italian No 7, Jul-Aug 86 p 92

[Article: "The Systems Which Will Guide Olympus"]

[Text] The European Space Agency has entrusted Telespazio with in-orbit management of Olympus, the European satellite for direct television broadcasting, for 5 years of operational life; this will be done via telemetry and command stations and the control center installed at Fucino. The systems produced for this mission include an 11 meter parabolic antenna functioning on S-band (2 GHz), transceiver systems, telemetry equipment, command and location devices, and the control center's computing system.

Functions carried out at the control center forsee reception and real time processing of the satellite's telemetry signals, sending of commands for changing the configuration of on-board systems, and location of the satellite through range and angle measurements.

Moreover, the control center will determine orbit and satellite trim, and maneuvers will be carried out through on board propulsion to maintain the satellite at nominal longitude.

Telespazio will also assist the European Space Agency during the launch phase and placement of the satellite in a geostationary orbit at 19 degrees west, through its plants at Fucino, and by assigning personnel who will operate the satellite during the initial phase of the mission from the Esoc Space Center.

Physical Description of Satellite

Turin MEDIA DUEMILA in Italian No 7, Jul-Aug 86 pp 65-67

[Article: "On Board Olympus 1--Selenia Spazio Telecommunications" by Alessandro Bellini, Luigi Torre]

[Excerpt] The European Space Agency has entrusted the production of Olympus, a large satellite (weighing 2,400 kilograms, more than 5 meters in height, 2 meters long, with 26 meter solar panels) to British Aerospace and to Selenia Spazio, the Italian space industry operating in the Iri-Stet Group under Selenia Elsag Group (RSE).

The British industry is responsible for the "structure" of the satellite while the Italians are responsible for the entire telecommunications system which makes up the payload of the satellite and includes the various transponders as well as the antennas and their controlling system.

The electronic apparatus is normally placed on the two panels which make up the north and south panels of the satellite. The panels, making the most of favorable orientation towards open space, are covered with surfaces capable of dispersing, by radiation, the considerable quantities of heat produced by the high power transmitters.

The antennas are partly placed on the panel facing earth (corresponding to the side facing upwards during launching) and partly on the western and eastern panels of the satellite, towards which they are folded during launch and transfer phases into orbit.

The antennas represent the more qualifying and critical elements of the telecommunications satellite. The design of these antennas causes such complex electric, thermal and structural problems as to necessitate extensive use of computers and special materials for their production (carbon fiber composites, etc). In this connection, it is only necessary to consider the large size, the adverse environmental conditions encountered during launching and operational orbit (especially during periods of eclipse), and the strict mechanical tolerances granted by the reflector surfaces (because of the high frequencies used).

Of the nine antennas fitted to the Olympus 1, five are maneuverable and one is equipped with an autonomous pointing system.

The latter (which covers television broadcasting to the Italian area) must maintain its orientation toward earth with stricter tolerances than appear possible for the satellite platform. To this end the antenna receives a continuous signal transnmitted from earth (from a radio beacon which will be placed on Italian soil) and extracts pointing error signals which are used to automatically activate an orienting device located at the base of the reflector.

Besides design and implementation of telecommunication missions, Selenia Spazio's systematic role forsees their successive integration of the satellite; these operations are currently in their final stage at the Satellite Integration Center in Rome

where, in the past, Sirio 1 and Sirio 2 satellites were produced and integrated.

At the moment this center is working on the production of two active payloads for the flight unit, to be delivered, according to schedule, to British Aerospace at the end of July; Selenia Spazio is responsible for this production (direct television broadcasting and telecommunications at 20-30 GHz).

Selenia Spazio has signed three contracts with the European Space Agency for the supply of earth monitoring stations and in-orbit tests (Iot) for the Olympus program.

These stations, which are expected to begin operations at the end of 1986 or the beginning of 1987, will be used to carry out tests on the Olympus transponders devoted to direct television broadcasting and special services in the 18-12 GHz and 14-12 GHz frequency bands. One of the three stations used to carry out television transmission experiments will be mobile with a 4.5 meter antenna, installed on an articulated vehicle with independent trailer.

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